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THE BIRDS OBSERVED IN BRITISH COLUMBIA AND WASHINGTON
DURING SPRING AND SUMMER, 1892.

BY SAMUEL N. RHOADS.

It is proposed to present in the following pages an ornithological résumé of a collecting trip made in Washington and British Columbia, from March 24 to September 3, 1892, together with an annotated list of the birds observed in those regions.

While ornithology claimed the greater part of my time, collections were also made of the mammals, reptiles, shells and plants of the districts visited, concerning which further publications will probably appear in the "Proceedings."

The bibliography of Washington and British Columbian ornithology is very meagre. Since the Cooper-Suckley Pacific Railroad Reports, nothing of much value relating to Washington birds has been published except the local lists of Mr. R. N. Lawrence.¹ Publications relating especially to British Columbia birds may be included under three titles: "The Naturalist in British Columbia," J. K. Lord, 1866; "On a Collection of Birds made by Mr. C. P. Streater in British Columbia," etc., 1890, F. M. Chapman; and "Check List of British Columbia Birds," John Fannin, 1891. Of these the second is authoritative, and based on authentic specimens a remark which in the end equally applies to Mr. Fannin's list, some of his most questionable statements being given on the authority of other persons and his mistakes the evident result of not having consulted series of specimens from different localities. Lord's list, given in the appendix to volume second of his work, if judged by the strictest standard of the modern faunal list is nearly worthless in the present connection. It is based on many observations and a few specimens taken on both sides of the forty-ninth parallel, between British Columbia and Washington. On this account I am forced to ignore it. Mr. Chapman's list includes 160 species, while that of Mr. Fannin enumerates 308. To their combined lists I am enabled to add twenty-one species coming under my own observation, seventeen of which are in the collection. With these additions, the British Columbia list, after throwing out two synonyms (*Æchmophorus*

¹ Auk, Jan. and Oct., 1892.

clarkii(?) and *Dendroica æstiva morcomi*) and excluding *Dryobates pubescens* from Fannin's list, numbers 326.

The additional species are :

<i>Simorhynchus pusillus.</i>	<i>Clivicola riparia.</i>
<i>Charadrius dominicus fulvus.</i>	<i>Vireo huttoni obscurus.</i>
<i>Callipepla californica vallicola.</i>	<i>Helminthophila ruficapilla gutturalis.</i>
<i>Bubo virginianus.</i>	<i>Dendroica maculosa.</i>
<i>Bubo virginianus subarcticus.</i>	<i>Sylvania pusilla.</i>
<i>Glaucidium gnoma.</i>	<i>Icteria virens longicauda.</i>
<i>Perisoreus canadensis capitalis.</i>	<i>Certhia familiaris montana.</i>
<i>Chondestes grammacus strigatus.</i>	<i>Parus hudsonicus columbianus.</i>
<i>Zonotrichia querula.</i>	<i>Turdus ustulatus swainsonii.</i>
<i>Spizella socialis.</i>	<i>Turdus aonalaschkeæ pallasii.</i>
<i>Passerella iliaca schistacea.</i>	

One of these, *Parus hudsonicus columbianus*, is described as new, a detailed notice of which, together with that of ten other species given in this paper, appears in the Auk for January, 1893.

To the combined lists of Cooper, Suckley and Lawrence, twenty-five species of Washington birds are added. These, with those not included in Mr. Lawrence's Gray's Harbor lists, are :

<i>Colymbus holbællii.</i>	<i>Tringa canutus.</i>
<i>Urinator arcticus.</i>	<i>Totanus flavipes.</i>
<i>Simorhynchus pusillus.</i>	<i>Arenaria interpres.*</i>
<i>Synthliboramphus antiquus.</i>	<i>Hæmatopus bachmani.</i>
<i>Brachyramphus marmoratus.*</i>	<i>Oreortyx pictus.*</i>
<i>Cepphus columba.*</i>	<i>Callipepla californica vallicola.</i>
<i>Uria troile californica.</i>	<i>Dendragapus franklinii.*</i>
<i>Larus argentatus smithsonianus.</i>	<i>Lagopus leucurus.</i>
<i>Larus californicus.*</i>	<i>Cathartes aura.*</i>
<i>Larus delawarensis.*</i>	<i>Circus hudsonius.</i>
<i>Larus brachyrhynchus.</i>	<i>Falco peregrinus pealei.</i>
<i>Phalacrocorax dilophus cincinnati.</i>	<i>Falco columbarius suckleyi.</i>
<i>Merganser serrator.*</i>	<i>Asio wilsonianus.</i>
<i>Lophodytes cucullatus.*</i>	<i>Syrnium occidentale.</i>
<i>Anas discors.</i>	<i>Megascops asio kennicottii.*</i>
<i>Spatula clypeata.*</i>	<i>Dryobates pubescens gairdneri.*</i>
<i>Aix sponsa.*</i>	<i>Sphyrapicus ruber.*</i>
	<i>Cypseloides niger.</i>

<i>Aythya americana.</i>	<i>Chaetura vauxii.</i>
<i>Histrionicus histrionicus.*</i>	<i>Pica pica hudsonica.</i>
<i>Anser albifrons gambeli.*</i>	<i>Agelaius phoeniceus.*</i>
<i>Branta canadensis hutchinsii.*</i>	<i>Progne subis.*</i>
<i>Branta canadensis occidentalis.*</i>	<i>Vireo solitarius cassinii.*</i>
<i>Branta canadensis minima.</i>	<i>Dendroica coronata.*</i>
<i>Olor buccinator.*</i>	<i>Sitta carolinensis aculeata.*</i>
<i>Grus mexicana.</i>	<i>Sitta canadensis.*</i>
<i>Porzana carolina.</i>	<i>Parus atricapillus occidentalis.</i>
<i>Fulica americana.*</i>	

Owing to the former incompleteness of bird material from the northwest, the relationships of some western forms to their eastern allies has remained a vexed question. The series in my possession have, in some instances, supplied this deficiency and seem to justify certain changes in nomenclature. Of these may be mentioned, 1. *Corvus caurinus* merged with the northwest form of *C. americanus*, and conjointly separated from eastern *C. americanus* under the name *Corvus americanus caurinus*. 2. The relegation of *Melospiza lincolni striata* to synonymy. 3. The elevation of the northwest Warbling Vireo to its former rank of *Vireo gilvus swainsonii*. 4. *Sylvania pusilla pileolata* made synonymous with *Sylvania pusilla*. 5. The possibility that *Turdus aonalaschke* and *Turdus aonalaschke pallasii* are specifically distinct.

The localities where collections were made number fourteen. In order of sequence they may thus be separately described :

1. Tacoma, Washington, March 4-28.
2. Nisqually Flats, Washington, March 29-April 22.

The situation of Tacoma on Puget Sound is well known, that of Nisqually Flats, fourteen miles southwest of it, at the mouth of the river of the same name, though less known, is far more historic ground, being part of the territory surveyed by the well known naturalists of the Pacific Railroad Expedition of 1853-55. The country in this region is moderately hilly and densely forest-clad, save where intervening level, park-like areas indicate by their stunted vegetation the presence of vast beds of glacial gravel. The shore lines of Puget Sound present an almost unbroken frontage of abrupt, fir-clad slopes from 100 to 500 feet high ; many rocky islands, some of goodly size, intervene and the uplands are well interspersed with

* Asterisk after species given by Suckley and Cooper.

lakes. Alluvial tide meadows, of which the Nisqually rank as the most extensive, occasionally break the monotony of the shore. These are grass grown, and, along the river banks, bear cottonwood, aspen, vine-maple, willow and giant cedar, in some places joined by bush and vine in an inextricable tangle. The tides fall from nine to twelve feet below high water, exposing at Nisqually thousands of acres of mud-flats which afford subsistence to myriads of water fowl.

During the winter of 1891-2 it did not snow, nor did the ground freeze, at Tacoma. Twenty-three of the thirty April days spent in this region were rainy; only two were cloudless; but the total precipitation for the month was less than four and a half inches. There are no mountains in the near vicinity, the central Cascades being forty miles distant.

- 3. Victoria, B. C.,
 - 4. Goldstream, B. C.,
- } May 3-25.

Goldstream is a ranch about twenty miles north of Victoria, Vancouver Island. The features of the southern part of the island are those of a rocky, open, hill-country, sometimes densely wooded but often relieved by open stretches of a park-like character dotted with lakes. An exceptional feature is the presence of oaks, *Quercus garryana*, which appear here and nowhere else in British Columbia, nor in Washington. The mountains rarely attain an elevation of 2,000 feet; precipitation less and summer temperature greater than on Puget Sound.

- 5. Lulu Island, B. C., May 26-June 1.

A delta of the Frazer River, two and a half feet below neap tides, dyked throughout and covered with grass, bushes and isolated higher tracts of woodland. Much of the land is fertile and well cultivated.

- 6. Ashcroft, B. C., June 2-12.

Ashcroft is on the northernmost frontier of the Great Basin or arid upper Sonoran region, or, as Dr. Merriam rightly terms it, in the area of "Transition" from that life-region to the Boreal Zone. British Columbia rainfall is here at its minimum, and summer temperature at its maximum. Fauna and flora coincide remarkably with those of Arizona found above an elevation of 4,000 feet, the mountains about Ashcroft rarely reaching that altitude. Ashcroft is on the west bank of the Thompson River, in a narrow valley, 1,500 feet above the sea, hemmed in by mountains thinly clad with

bunch grass, cacti, sage brush and rose bushes, and bearing on their summits open forests of fir and pine.

7. Bonaparte, B. C., June 13-17.

The first stopping place on the famous Cariboo Road which connects Ashcroft with the northern mining regions, and twenty miles away from the latter place. Bonaparte is at the southern limit of the true Boreal region and the northern limit of abundant cacti and sage brush. Its mean elevation is 1,000 feet higher than Ashcroft. *Salpinctes obsoletus*, *Tyrannus verticalis*, *Sayornis saya* and *Icterus bullockii* draw the line at this point.

8. Clinton, B. C.,

9. Lac La Hache, B. C., } June 18-July 7.

Clinton, thirty miles north of Ashcroft, rests in a green valley at the foot of outlying spurs of the Cascades. Its elevation is about 2,500 feet. It is the first step into the typical Boreal environment of pine, fir, spruce, juniper and aspen, preparing one for the upland lake plateaus in which lakes La Hache and Quesnel form a conspicuous feature.

To reach La Hache from Clinton the stage line passes for twenty miles over a broad, wooded ridge, 4,000 to 5,000 feet high, and descends again to 2,400 feet in the La Hache Valley. Both localities are semi-arid, well wooded, devoid of much under-growth, covered with nutritious grasses and thickly dotted with alkaline and fresh-water lakes which have no visible outlet. The climate is not rigorous and singularly equable for the latitude.

Lac La Hache was the northern terminus of my journey, 200 miles north of the United States, in latitude 52°.

10. Kamloops, B. C., July 12-15.

Fifty miles east of Ashcroft at head of Kamloops Lake. Similar in situation and environment to Ashcroft with slightly greater rainfall. The border of the arid region continues eastwardly along the Canadian Pacific Railway, from Kamloops, fifty miles, nearly to Salmon River, where it descends directly south to the head of Okanagan Lake, thence east to the foot of the Gold Range which bounds it on that side to within twenty miles of the United States. At this point it widens suddenly, extending eastwardly to and beyond the valley of the Columbia River.

11. Sicamous, B. C., July 16-19.

A railroad Junction of the Canadian Pacific Railway with the Shuswap and Okanagan branch which runs fifty miles south into

the best agricultural valley of the Province. Sicamous overlooks Shuswap Lake, into which it is nearly crowded by the surrounding mountains that here flank the western slopes of the Gold Range. The mountains are rugged, densely wooded, and those above 5,000 feet are topped with snow. We begin here to have a reproduction of the climatic conditions which, in the more easterly Selkirk Range, correspond so nearly to those of the west slopes of the Cascades.

12. Vernon, B. C., July 21–August 11.

Terminus of Okanagan and Shuswap railway, in the midst of the famous Spulamacheen Valley. Rainfall is sufficient to mature staple crops without irrigation. Vernon is surrounded by a rolling, open, mountainous country with wooded elevations. The variety and abundance of its fauna and flora are astonishing. Mean elevation of the valley is 1,100 feet, that of the surrounding mountains 2,500 to 3,000 feet. Climate, that of northern Pennsylvania, with less rainfall.

13. Nelson, B. C., August 16–23.

A mining town in the southern Selkirks on the west shore of Kootenay Lake. Situated among rugged, cliff-like mountains at 1,200 feet. While its climate is less moist than that of the west slope, the abundant vegetation is characteristic of the Selkirks.

14. Field, B. C., August 27–September 3.

In the central Rocky Mountains, 5,000 feet above the sea and on the line of the Canadian Pacific Railway, through Kicking Horse Pass, eight miles west of the eastern boundary of British Columbia and thirty miles east of the Columbia River. The scenery around Field is a fitting climax to that which greets the eye from every point of vantage in the mountain-burdened Province of British Columbia. From boreal to alpine is a comparatively short step in the natural history of Field.

In general, the faunal position of those parts of Puget Sound, South Vancouver Island and Lulu Island visited by me is simple, but in British Columbia, as a whole, it is quite complex. The former localities are included in the typical northwest coast region of excessive rainfall which varies from sixty to one hundred inches yearly in the localities where collections were made. The coast region, while essentially boreal in character, possesses many elements peculiar to itself, due to moisture, cloudy skies, temperate and equable climate and the density of the resulting vegetation. It also affords shelter for some species which have been considered repre-

sentative of Californian and Sonoran sub-regions, such as *Glaucidium gnoma californicum*, *Syrnium occidentale*, *Coccyzus americanus occidentalis*, *Vireo huttoni* (*obscurus*), *Salpinctes obsoletus*, and *Psaltiriparus minimus*. There is also a slight intermingling element of typical eastern forms in the central and northerly part of the Pacific coast fauna due to similarity of its climate to that of the North Atlantic coast and the accessibility of the region to migrants from the northwest interior and Alaska. Thus we have *Spizella socialis*, *Empidonax pusillus trailii*, *Dendroica coronata*, *Spinus tristis*, *Colaptes auratus* (?) and *Sylvania pusilla* breeding on Vancouver Island, while in the interior of British Columbia, east of the Cascades, these are wholly, or for the most part, replaced by *Spizella socialis arizonæ*, *Empidonax pusillus*, *Dendroica auduboni* and *Colaptes cafer*, *Spinus tristis* appearing (?) to be absent.

As a whole, the province of British Columbia includes a diversity of faunal characters which no single geographic area in America can match. As a result it may further boast of a longer list of summer residents than any equal area included in the A. O. U. check list limits. Approximately these number 330 in British Columbia. In the rest of British America, an area ten times larger, it is about 365; in the Middle States, 177, and in the United States east of the Mississippi, 300. This exceptional showing is brought about by a conjunction, intrusion and overlapping of the Arctic, Boreal and Transition life zones. It is further complicated by the westerly extension of Atlantic-boreal forms to the Pacific, the intrusion of upper Sonoran species into the central, arid region, the straggling of Pacific coast forms across the Cascades, the sojourn of Arctic species on the higher mountains and "barren grounds" of the north and the southward migration of all, including land and marine species of the polar regions, across common territory. This cosmopolitan feature of British Columbian biology makes the study of its zoogeography both difficult and fascinating. Mr. Chapman has pointed out some of these peculiarities in his paper on the Streater collection, and considering that he had no personal acquaintance with the country, his deductions are remarkably just. After what has been said on the subject, however, we cannot admit that in British Columbia "faunal lines are not so complicated" as in "northern California," for they are infinitely more so. Mr. Chapman has drawn close lines for the eastern boundary of the habitat of so-called "coast forms," but of the thirty-one species enumerated

by him as limited thereto, ten:—*Dendragapus obscurus fuliginosus*, *Bonasa umbellus sabini*, *Megascops asio kennicottii*, *Bubo virginianus saturatus*, *Colaptes cafer saturator*, *Junco hyemalis oregonus*, *Melospiza fasciata guttata*, *Troglodytes hiemalis pacificus*, *Regulus satrapa olivaceus* and *Turdus aonalaschkae*, are represented in various localities between and including the Cascades and the Rockies. Of those restricted by him to territory east of the Cascades, *Dendragapus franklinii*, *Bonasa umbellus togata*, *Bubo virginianus* (?), *Falco peregrinus anatum*, *Falco columbarius*, *Anmodramus sandwichensis alaudinus* and *Sylvania pusilla*, are also found west of them.

It is thus seen that coast and interior species overlap across wide areas. This is probably due less to migration than to isolated reproduction of eastern and western environments in alternate sections of country induced by altitude, the Japan current, prevailing winds, parallel and intervening mountain ranges and the projection of an arid Transito-Sonoran area, 200 miles wide and 100 long, into the midst of the southern section of the Province. I am nowise convinced that we are to look east or west for an annual supply of those birds assigned to so-called "eastern or western races" which are found in out-of-the-way or unlooked-for localities in British Columbia. On the contrary, it is probable they are the native born product of similar isolated environments and, while of the same ancestral stock, have become so isolated by changes in the climate and topography of intervening territory. In other cases they will be found, by a more thorough exploration of the country, to be connected with the type habitat by narrow lines of distribution, projecting south and west from Alaska and Great Slave Lake and east and west through the low passes of the Cascades and Northern Rockies. Such aspects of distribution have little to do with the mere annual north and south movement which we call migration; evolution of environment and evolution in accord with environment are the responsible factors. These have made possible the occurrence of *Spizella socialis* on Vancouver Island and of *Bubo virginianus saturatus* in Labrador, each represented over a vast intervening territory by a distinct race. The migration of eastern forms resident in southern British Columbia is undoubtedly over an independent Great Basin route and not, as Mr. Chapman surmises, along the western edge of the Great Plains.

To Edwards Bros. of Tacoma, Messrs Fannin, Maynard and Lindley of Victoria, the Messrs McKinley of Lac La Hache, and Mr.

Pound of Vernon, British Columbia, my sincere thanks are due for professional and friendly courtesies received. Also to Messrs R. Ridgway of the Smithsonian Institution, and J. A. Allen of the American Museum of Natural History of New York, for loan of material for the identification of specimens, and to Mr. Witmer Stone of Philadelphia, for the care of the collections during my absence, and aid in their identification. I wish further to particularly acknowledge the kindly loan of 200 specimens collected by my companions, Messrs G. S. Morris and J. W. Evans, during our sojourn together in Washington and Vancouver Island.

The collection, from which the following list, for the most part, is compiled, numbers 1300 specimens. An asterisk precedes the name of species not represented in the collection. Unless otherwise specified, the annotations refer to the status of the species in both Washington and British Columbia. A list, giving the number of each species in the collection and locality of capture, will be found at the end of the paper.

*1. *Æchmophorus occidentalis*. Western Grebe.

Shores of Puget Sound and Vancouver Island in April and May, Lac La Hache, July. Abundant resident in British Columbia.

*2. *Colymbus holboellii*. Holboell's Grebe.

Nisqually in April. Tolerably abundant on lakes of British Columbia interior in summer.

3. *Colymbus auritus*. Horned Grebe.

Nisqually in April. Breeds on interior lakes as far south as Ashcroft.

4. *Podilymbus podiceps*. Pied-billed Grebe.

Breeds on Vancouver Island and throughout mainland of British Columbia.

5. *Urinator imber*. Loon.

An abundant resident everywhere.

6. *Urinator arcticus*. Black-throated Loon.

A female was secured at Nisqually and others noted there during early April.

*7. **Urinator pacificus*. Pacific Loon.

Two mounted specimens from near Tacoma are in the collection of Edwards Bros., of that city.

- *8. *Urinator lumme*. Red-throated Loon.

Specimens examined were from the coast as far south as Tacoma. None met with inland.

- *9. *Lunda cirrhata*. Tufted Puffin.

Abundant on coast and Islands of Straits of Fuca and Gulf of Georgia. Not noted on Puget Sound.

- *10. *Ptychoramphus aleuticus*. Cassin's Auklet.

Specimens from Puget Sound in Edwards Bros. collection.

- *11. *Simorhynchus pusillus* (?). Least Auklet.

A straggler on Puget Sound—Edwards Bros.¹

12. *Synthliboramphus antiquus*. Ancient Murrelet.

A specimen from the northwest coast of Vancouver Island, taken by W. S. Lindley, is in the collection.

13. *Brachyramphus marmoratus*. Marbled Murrelet.

Abundant resident on Puget Sound and Gulf of Georgia.

- *14. *Cephus columba*. Pigeon Guillemot.

Abundant. Same distribution as last.

- *15. *Uria troile californica*. California Murre.

A pair seen on Puget Sound near Nisqually.

16. *Larus glaucescens*. Glaucous-winged Gull.

Abound in the Sound and sea-coast harbors.

17. *Larus occidentalis*. Western Gull.

Associates abundantly with preceding.

- *18. *Larus argentatus smithsonianus*. American Herring Gull.

Less abundant than preceding species.

19. *Larus californicus*. California Gull.

More abundant than *L. a. smithsonianus*.

20. *Larus delawarensis*. Ring-billed Gull.

Abundantly associating with next species in all sea-coast harbors and inlets.

21. *Larus brachyrhynchus*. Short-billed Gull.

The most abundant of the Pacific *Laridæ*.

22. *Larus philadelphia*. Bonaparte's Gull.

Migrating and feeding in dense flocks over sea-coast harbors and river mouths the latter part of April. Breed about interior lakes and rivers of British Columbia.

¹Auk, January, 1893.

*23. *Sterna*—?

Two Terns were seen on the Columbia River, at the head of upper Arrow Lake, in August. At first they resembled *Larus philadelphia*, but a nearer approach showed them to be Terns, probably *Sterna paradisæa*.

*24. *Phalacrocorax dilophus cinctatus*. White-crested Cormorant.

*25. *Phalacrocorax pelagicus robustus*. Violet-green Cormorant.

Edwards Bros. have secured both species on Puget Sound. I have seen one, if not both, on the coast of Vancouver Island.

*26. *Pelecanus erythrorhynchos*. American White Pelican.

Occasional as far north as Stewart's Lake and Peace River, British Columbia, according to Mr. G. Hamilton, an ex-Factor of Fort James. I was told by the McKinley Bros. that "white pelicans" were formerly numerous "in the migrations" at La Hache, Williams and Quesnel Lakes. I saw a fine male in the shop of Mr. Pound, at Vernon, which was shot this spring on Okanagan Lake. From accounts, its distribution in British Columbia, once general, is yearly becoming restricted to the southern districts. Puget Sound, Edwards Bros.

*27. *Pelecanus californicus*. California Brown Pelican.

This species has been seen by Mr. Hamilton on La Hache and Williams Lakes in company with the preceding. Mr. J. F. Brown, of Empire Valley, has noted them in the Chilcotin district, British Columbia. I did not meet with either species. Tacoma, Edwards Bros.

28. *Merganser americanus*. American Merganser.

29. *Merganser serrator*. Red-breasted Merganser.

On the coast there was little difference in the abundance of these resident species. *Americanus* was rare in the interior, where both were breeding.

*30. *Lophodytes cucullatus*. Hooded Merganser.

Evenly distributed everywhere, but nowhere abundant.

*31. *Anas boschas*. Mallard.

Mallards were abundant and resident in every locality below 4,000 feet elevation.

*32. *Anas strepera*. Gadwall.

Rare. Specimens from Puget Sound in Edwards Bros. collection.

33. *Anas americana*. Baldpate.

Very abundant on Pacific Coast and Puget Sound in spring. Breeding in the interior lake districts. Ashcroft, Clinton, Lac La Hache.

34. *Anas carolinensis*. Green-wing Teal.

Assembling in incredible numbers on the flats of Nisqually River. Resorting with others to the interior in summer.

35. *Anas discors*. Blue-wing Teal.

Mr. Fannin calls this a "very rare bird" in British Columbia. I found it breeding about several of the small lakes in the vicinity of Lac La Hache. A male, female and three young were secured.

36. *Anas cyanoptera*. Cinnamon Teal.

To Mr. Fannin's two records of this species I can add several. In the smaller, more retired, woodland lakes along the Cariboo Road above Clinton, I frequently flushed the Cinnamon Teal. Only one specimen was secured. Mr. D. McKinley, Lac La Hache, says the "red teal" breeds sparingly in that neighborhood every year.

37. *Spatula clypeata*. Shoveller.

Numerous on Puget Sound in spring. A few found breeding along the Cariboo Road.

38. *Dafila acuta*. Pintail.

Abundant in all coast waters during migrations; breeding throughout the interior.

***39. *Aix sponsa*.** Wood Duck.

Rarely met with. Puget Sound specimens in Edwards Bros. museum.

***40. *Aythya americana*.** Red-head.

Reported as a rare duck in the vicinity of Tacoma, by Edwards Bros. A few were found breeding with *A. vallisneria* about an alkali lake near Lac La Hache.

41. *Aythya vallisneria*. Canvas-back.

Sparingly distributed over the entire country and summering on the more inaccessible lakes of the northern interior.

***42. *Aythya marila nearctica*.** American Scaup Duck.

Plentifully distributed. A summer resident east of Cascades in all parts visited.

*43. *Aythya affinis*. Lesser Scaup Duck.

Rare. A specimen in Edwards Bros. collection and one in the British Columbia Museum, at Victoria, belong to this species.

44. *Glaucionetta clangula americana*. American Golden Eye.

Several seen at Nisqually. In the interior an abundant summer resident. They occasionally nest on the ground.

45. *Glaucionetta islandica*. Barrow's Golden Eye.

Two specimens collected on Puget Sound by Jos. Edwards, who pronounces them to be rare. In the eastern Cascade region they associate and breed with *G. clangula americana* in the proportion of one to three.

46. *Charitonetta albeola*. Buffle Head.

Same distribution as *Glaucionetta clangula americana*.

*47. *Clangula hyemalis*. Old Squaw.

A few seen on the Vancouver Island coast. Puget Sound ; Edwards Bros.

*48. *Histrionicus histrionicus*. Harlequin Duck.

Rare in Puget Sound, Edwards Bros. Rare at Lac La Hache, Duncan McKinley.

49. *Oidemia americana*. American Scoter.

A few noted at Nisqually among flocks of *O. deglandi*.

*50. *Oidemia deglandi*. White-winged Scoter.

Most abundant of the genus, both on the coast and mainland interior. I am convinced it breeds as far south as 150-Mile House, Cariboo Road, individuals being seen at Lac La Hache July 4.

*51. *Oidemia perspicillata*. Surf Scoter.

Fairly abundant on coast sounds and harbors during my stay.

*52. *Erismatura rubida*. Ruddy Duck.

Sparingly represented on the interior lakes during summer. Not met with on coast. Puget Sound, Edwards Bros.

*53. *Anser albifrons gambeli*. American White-fronted Goose.

A few seen at Nisqually are referable to this species. Tacoma, Edwards Bros. It is not probable that they breed on Puget Sound.

54. *Branta canadensis*. Canada Goose.

In flocks on the mud flats of Puget Sound during April. According to the McKinleys it breeds about the mainland lakes and is distinguished from smaller races by the name of "Honker." One

specimen shot at Nisqually is referable to this species, but resembles *occidentalis* in color of lower parts.

55. *Branta canadensis hutchinsii*. Hutchin's Goose.

56. *Branta canadensis occidentalis*. White-cheeked Goose.

*57. *Branta canadensis minima*. Cackling Goose.

Intergrades connect any series of Washington birds of this group so completely that it is impossible to class every individual by its size or coloration. Three specimens obtained from the same flock may be severally referred to *hutchinsii* and *occidentalis*, one of them being intermediate between *hutchinsii* and *occidentalis* and another between *hutchinsii* and *minima*. All the Canada geese obtained on my trip were secured at Nisqually in April and were migrants. If Mr. Fannin's statements are based on authentic records and on specimens taken in the proper season, *canadensis* and *hutchinsii* breed in the same localities on the mainland, a state of affairs unknown east of the Rockies and inconsistent with their classification as it now stands in the books. The bulk of Pacific coast skins examined present a most puzzling constancy in their intermediate size coupled with an inconstancy of coloration which makes their classification by the most adjustable formula of little value.

The faunal position of Puget Sound and the Gulf of Georgia makes them the winter resort not only of *canadensis* but of all its three offshoots, thus presenting an array of combinations in winter which the magic wand of migration alone can classify. Until we follow and secure them on their breeding grounds the true relationships of the *Branta canadensis* group in British Columbia will remain a mystery. But it is probable it will resolve itself at that season into a case of parallel intergradation, *occidentalis* east of the Cascades insensibly diminishing into *minima*, and west of the Cascades, *canadensis* merging into *hutchinsii*, as they severally approach the Arctic Circle.

*58. *Branta nigricans*. Black Brant.

Numerous on the larger bodies of salt water during March and April.

*59. *Olor columbianus*. Whistling Swan.

Puget Sound, Edwards Bros.; Vancouver Island, W. Lindley; Vernon, W. C. Pound; La Hache and Williams Lakes (breeds), G. Hamilton.

*60. *Olor buccinator*. Trumpeter Swan.

Six Trumpeters were seen at Nisqually. They migrate along the Columbia and visit Lac La Hache in fall.

*61. *Botaurus lentiginosus*. American Bittern.

Noted only in the interior of British Columbia where it breeds.

62. *Ardea herodias*. Great Blue Heron.

Abounds on the coast. Contrary to Mr. Fannin's experience, I was struck by the total absence of this heron from the interior, none being seen or heard of. An old male from Nisqually is darker on sides of neck than any other examples examined. Mr. Chapman informs me that it is possible, from imperfect specimens sent to the American Museum of Natural History from the Queen Charlotte Islands, that a darker race inhabits the region of maximum rainfall on the Pacific coast. Specimens in the Victoria Museum, from Vancouver Island, neither strengthen nor disprove this theory.

*63. *Grus canadensis*. Little Brown Crane.

Passing in flocks along the shores of Puget Sound with the next species. Heard of, but not seen, in the interior of British Columbia.

*64. *Grus mexicana*. Sandhill Crane.

Breeding in isolated pairs through the lake region of British Columbia. Young found in early July.

*65. *Rallus virginianus*. Virginia Rail.

Tacoma, Edwards Bros.; Victoria, A. J. Maynard.

66. *Porzana carolina*. Sora.

Breeding commonly throughout British Columbia. Not seen in Washington.

*67. *Fulica americana*. American Coot.

Often heard than seen about the lakes of coast and interior, where they breed.

68. *Crymophilus fulicarius*. Red Phalarope.

None seen. A female in the collection was taken by Mr. Lindley near Victoria.

*69. *Gallinago delicata*. Wilson's Snipe.

Abundant in spring along the coast. Breeds sparingly in the east Cascade region.

*70. *Macrorhamphus scolopaceus*. Long-billed Dowitcher.

A few seen among flocks of *Tringas* at Nisqually.

*71. *Tringa canutus*. Knot.

Sparingly associated with preceding during spring migration along the coast.

72. *Tringa minutilla*. Least Sandpiper.

Six seen and two shot at Nelson. Breed sparingly by the lakes of Okanagan Valley and Rocky Mountain districts. Migrant on coast of Washington and Vancouver Island.

73. *Tringa alpina pacifica*. Red-backed Sandpiper.

Abundant about coast waters in spring. None seen during breeding season.

74. *Ereunetes occidentalis*. Western Sandpiper.

Common on coast in spring and breeding in suitable parts of the interior. Two male specimens from Tacoma and Victoria are smaller than the minimum measurements assigned by Mr. Ridgway to *occidentalis* but their bills exceed the average for *pusillus*. Coloration in all is that of *occidentalis*. Perhaps, if Mr. Chapman's specimen of "*pusillus*," taken at Ducks, British Columbia, shows rusty tinge of upper parts it may be considered a dwarf example of the western species.

75. *Totanus melanoleucus*. Greater Yellow Legs.

Found along coast during migrations. Breeding about inland lakes as far south as Clinton. At this season both sexes stand sentinel on the tops of trees in the vicinity of the nest, rarely alighting on the ground during the presence of an intruder. The newly fledged young often follow the example of their parents in this respect. From this elevated position the male keeps up an incessant clamor throughout the day. One series of notes, uttered only during periods of fancied security, is peculiar and unquestionably a love song.

*76. *Totanus flavipes*. Yellow Legs.

One seen (?) at Nisqually. Specimen seen in central British Columbia.

77. *Actitis macularia*. Spotted Sandpiper.

Two seen on the shores of Puget Sound. Rare at Tacoma. Fairly abundant about all interior lakes.

78. *Numenius longirostris*. Long-billed Curlew.

Seen at Victoria and Lulu Island in May. Breeding at Lac La Hache and Vernon.

*79. *Numenius hudsonicus*. Hudsonian Curlew.

Several were noted on Tacoma flats and one near Victoria. Specimens in collection of Edwards Bros.

80. *Charadrius dominicus fulvus*. Pacific Golden Plover.

A male, shot in winter at Victoria by Mr. Lindley, may be provisionally referred to this subspecies. Mr. Fannin does not recognize the existence of it in his list. Until more material is secured it remains an open question whether *fulvus* migrates along the Pacific coast of America.

81. *Aegialitis vocifera*. Kildeer.

Heard migrating on the coast, where it is considered rare by Edwards Bros. Breeds sparingly about inland lakes as far as 53°. Nowhere abundant.

*82. *Arenaria interpres*. Turnstone.

Puget Sound, Edwards Bros. None seen alive.

*83. *Hæmatopus bachmani*. Black Oyster Catcher.

Islands of Gulf of Georgia. Puget Sound, Edwards Bros.

*84. *Oreortyx pictus*. Mountain Partridge.

A few seen at Nisqually. Tacoma, Edwards Bros. The vicinity of Puget Sound at present is debatable ground between the introduced and indigenous birds of this species. The northern limit of *Oreortyx pictus* in Washington, prior to the introduction of California and Oregon birds probably reached the southern shores of Puget Sound. At present they reside in suitable places over eastern Washington, southern Vancouver Island and the southern Cascade region of British Columbia.

85. *Callipepla californica*. California Partridge.

86. *Callipepla californica vallicola*. Valley Partridge.

A male, taken at Nisqually, is a nearly typical *vallicola*. Three males from Vancouver Island are intermediate between *californica* and *vallicola*, but agree more nearly with the latter. So complete has been the admixture of native with introduced birds of both forms from California that typical examples of either are a rarity. One, if not both, is indigenous to the coast and interior valleys of certain parts of Washington, but to what extent it will now be impossible to determine. In common with the preceding species and two species of Asiatic Pheasant, both California and Valley Quail have

become naturalized and abundant throughout the settled parts of Vancouver Island.

87. *Dendragapus obscurus fuliginosus*. Sooty Grouse.

Abundant everywhere and at all elevations west of the Cascades. This form reappears on the higher areas of increased rainfall between the Rocky Mountains and Cascades in British Columbia.

88. *Dendragapus obscurus richardsonii*. Richardson's Grouse.

Everywhere throughout the interior of British Columbia. A complete series of this race from all parts of British Columbia compared with a like series of *fuliginosus* will be likely to present certain facts of distribution and differentiation quite at variance with our present view of the subject.

89. *Dendragapus franklinii*. Franklin's Grouse.

Numerous on the slopes and summits of the higher mountains of the mainland to and including the Cascades and Rockies. On the Cascades as far south as Nachess Pass, Washington.

90. *Bonasa umbellus togata*. Canadian Ruffed Grouse.

91. *Bonasa umbellus sabini*. Oregon Ruffed Grouse.

Specimens from districts between Cascade and Rocky Mountains in British Columbia are pretty uniformly colored, one male alone showing red phase of *sabini*. Intermediates nearly connect the grayest coast specimens of *sabini* with darkest examples of *togata* from the interior. A male *sabini* from Lulu Island has a nearly typical *togata* tail. I find no eastern specimens in the Academy's collection comparable in grayness with any from British Columbia or Washington.

***92. *Bonasa umbellus umbelloides*.** Gray Ruffed Grouse.

Of the Ruffed Grouse found in the Rocky Mountains at Field I failed to secure specimens. Mr. Fannin classes them as *umbelloides*.

93. *Lagopus rupestris*. Rock Ptarmigan.

Summits of Cascades, Clinton, Lac La Hache; also on summits of Rocky Mountains, Field, Hector, Ottertail. Abundant, descending to 4,000 feet in winter.

***94. *Lagopus leucurus*.** White-tailed Ptarmigan.

Residents inform me this species is also found sparingly in winter in Kicking Horse Pass, British Columbia. One obtained at Hector examined. Reported from Soues Mountain, Clinton, by Mr. Jos. Smith, also from Mount Tacoma, Washington; Edwards Bros.

- 95. *Pediocaetes phasianellus columbianus*.** Columbian Sharp-tailed Grouse.

Abounding in central British Columbia. This Grouse is not essentially a plain-haunting bird. I found them frequent on the densely wooded plateau extending from Clinton to 108-Mile House, Cariboo Road in country 5,000 feet above the sea level.

- 96. *Columba fasciata*.** Band-tail Pigeon.

Found at Tacoma, Vancouver Island and Lulu Island. Not met with elsewhere nor reported from east of Cascades.

- 97. *Zenaidura macroura*.** Mourning Dove.

Sparingly represented in interior of British Columbia as far north as Clinton.

- *98. *Pseudogryphus californianus*.** California Vulture.

Seen on Lulu Island as late as "three or four years ago" by Mr. W. London. "None seen since, used to be common."

- *99. *Cathartes aura*.** Turkey Vulture.

Numerous on Puget Sound. In greatly diminished numbers over the whole Province of British Columbia as far north as Lac La Hache.

- 100. *Circus hudsonius*.** Marsh Hawk.

Noted at every stopping place. Nowhere abundant.

- 101. *Accipiter velox*.** Sharp-shinned Hawk.

Cosmopolitan but not abundant.

- 102. *Accipiter cooperi*.** Cooper's Hawk.

Distribution general. Breeding at Lac La Hache. Rocky Mountains, 7,000 feet. Rare.

- *103. *Accipiter atricapillus*.** American Goshawk.

Seen only at Vernon.

- *104. *Buteo borealis calurus*.** Western Red Tail.

Distribution and abundance like that of the eastern form. Breeding near the summits of Rockies at Field.

- *105. *Buteo lineatus elegans*.** Red-bellied Hawk.

Hawks, presumably of this species, were thrice seen in the British Columbia interior.

- 106. *Buteo swainsoni*.** Swainson's Hawk.

Breeds in the arid, mountainous interior. In July I found them abundant on the higher unwooded elevations at the head of Okanagan Lake near Vernon. One evening they congregated about the

summit of a rocky eminence, 3,000 feet above the lake, to the number of three or four hundred, every large boulder seating one or more birds, and many others sitting contentedly on the flat ground. Ninety per cent of those which flew near me were in the dark phases of plumage, some of them appearing uniformly black as they swept past. Three females secured had the crop stuffed exclusively with grasshoppers.

*107. *Archibuteo lagopus sancti-johannis*. American Rough-legged Hawk.

One seen at Vernon, and a specimen seen at the same place in the collection of Mr. Pound. Another, shot on Vancouver Island, is in the possession of Mr. Lindley, of Victoria. Considered a very rare bird on the Pacific Coast.

*108. *Aquila chrysaetos*. Golden Eagle.

Seen two or three times in the interior mountains. As rare in British Columbia as on the Atlantic seaboard.

*109. *Haliaeetus leucocephalus*. Bald Eagle.

As omnipresent in British Columbia and Washington as the lakes and streams.

*110. *Falco peregrinus anatum*. Duck Hawk.

Rare. I refer two specimens seen east of the Cascades to this species. They reach the Pacific.

*111. *Falco peregrinus pealei*. Peale's Falcon.

Mounted specimens seen in the shop of Mr. Inglis, of Vancouver, British Columbia. Duck Hawks of both (?) races were seen at Nisqually.

112. *Falco columbarius*. Pigeon Hawk.

A mated pair shot at Lac La Hache.

113. *Falco columbarius suckleyi*. Black Merlin.

Examples seen on the coast should be classed under this name, though Mr. Fannin has found both west of the Cascades. A specimen from Victoria is in the collection.

114. *Falco richardsonii*. Richardson's Merlin.

One shot at the head of Okanagan Lake.

115. *Falco sparverius*. American Sparrow Hawk.

Everywhere the most abundant Raptore.

*116. *Pandion haliaetus carolinensis*. American Osprey.

Wherever fish abound in the northwest these fishermen have "preempted the claim."

- *117. *Asio wilsonianus*. Long-eared Owl.

Rare everywhere, but likely to turn up anywhere in Washington or British Columbia. Tacoma, Edwards Bros.

- *118. *Asio accipitrinus*. Short-eared Owl.

Vancouver and Lulu Islands; at Nisqually and about the lakes of the interior.

- *119. *Syrnium occidentale*. Spotted Owl.

A specimen taken near Tacoma by Edwards Bros. is in the collection. Others have been seen and taken in that vicinity.

- *120. *Scotiaptex cinerea*. Great Gray Owl.

One shot near Vernon was mounted by Mr. Pound last year.

- *121. *Nyctala acadica*. Saw-whet Owl.

An immature male taken at Vernon in July. Specimens mounted in the collections of gentlemen at Victoria, Vancouver and Tacoma.

- *122. *Megascops asio kennicottii*. Kennicott's Owl.

I obtained a male from Mr. Lindley, of Victoria. This Owl entirely escaped notice during my trip.

- *123. *Bubo virginianus*. Great Horned Owl.

- *124. *Bubo virginianus subarcticus*. Western Horned Owl.

- *125. *Bubo virginianus arcticus*. Arctic Horned Owl.

- *126. *Bubo virginianus saturatus*. Dusky Horned Owl.

A discussion of the Horned Owls of Washington and British Columbia will be found in the article in the Auk already referred to. It is probable that all the races of *Bubo virginianus* are to be found in British Columbia.

- *127. *Surnia ulula caparoch*. Hawk Owl.

Vancouver Island, W. F. Lindley. Vernon, W. C. Pound.

- *128. *Speotyto cunicularia hypogaea*. Burrowing Owl.

A special trip was made in the vicinity of Kamloops and Ashcroft for this species, but no trace remained of the colonies once existing there. The last pair known to remain in that locality lived in a badger's burrow on the bank of Thompson River, near the ferryman's house. None have been seen at Kamloops or Ashcroft since 1890.

- *129. *Glaucidium gnoma*. Pygmy Owl.

Interior British Columbia birds secured at Vernon are true *gnoma*. Mr. Pound says they winter there.

130. *Glaucidium gnoma californicum*. California Pygmy Owl.

Numerous west of Cascades.

131. *Ceryle alcyon*. Kingfisher.

Cosmopolitan and resident on the coast all winter.

132. *Dryobates villosus leucomelas*. Northern Hairy Woodpecker.

In a series of eight skins, one, a young female, lacks the white spotting on wing coverts characteristic of *leucomelas*. It is also much smaller than the rest, whose measurements correspond to those given by Mr. Ridgway for *leucomelas*.

133. *Dryobates villosus harrisi*. Harris's Woodpecker.

Three, of nine specimens, have unspotted wing coverts, the rest are spotted in varying degrees but less so than darkest examples of *villosus*. An adult male from Nisqually, with unspotted wing coverts, lacks the sooty suffusion of under parts in a remarkable degree.

134. *Dryobates pubescens oreæus*. Batchelder's Woodpecker.

Mr. Fannin includes *D. pubescens* as a "common resident east of and including Cascades," a statement which my series of twenty-one specimens fails to prove. Four interior specimens contained in the Streater collection are classed as intermediates between *pubescens* and *oreæus*. On examination I find that these agree with mine in the lack of distinct markings of lower tail coverts, one of these and six of the others showing traces of streaks on that part. In lack of white markings of wing coverts and secondaries the majority of the series agree with *oreæus*, six being intermediate between that race and *pubescens*.

***135. *Xenopicus albolarvatus*.** White-headed Woodpecker.

This bird has a claim to notice in this paper, solely on evidence of woodsmen at Vernon, who assert they sometimes see a "little white-headed sapsucker" in the forests at the head of Lake Okanagan. The striking difference between this and any other species of Woodpecker makes this testimony worth notice.

136. *Sphyrapicus varius nuchalis*. Red-naped Sapsucker.

Generally distributed and breeding throughout the interior. Did not see it in Washington nor on the British Columbia coast.

137. *Sphyrapicus ruber*. Red-breasted Sapsucker.

A male, shot near Tacoma was the only one seen.

138. *Ceophloeus pileatus*. Pileated Woodpecker.

Found in comparative abundance everywhere.

139. *Melanerpes torquatus*. Lewis' Woodpecker.

East of Cascades only. Rare in some localities, in others abundant.

- *140. *Colaptes auratus*. Flicker.

Two specimens in the Victoria Museum appear to be unmixed *auratus*. I neither saw nor heard of pure *auratus* in the interior of British Columbia nor in Washington.

141. *Colaptes cafer*. Red-shafted Flicker.

142. *Colaptes cafer saturator*. Northwest Flicker.

While *cafer* seems to be exclusively an eastern Cascade species, *saturator* cannot be said to confine itself to the coast, examples from local areas of great rainfall in the interior being indistinguishable from ordinary Vancouver Island specimens. Hybrids between these forms and *auratus* are exceptionally abundant in the northwest and have been made the subject of a special paper in Science, Vol. XX, No. 514, to which the reader is referred.

143. *Chordeiles virginianus*. Nighthawk.

Abundant in all interior localities.

144. *Chordeiles virginianus henryi*. Western Nighthawk.

Had not arrived on coast during my stay. Tacoma, Edwards Bros.

145. *Cypseloides niger*. Black Swift.

First seen at Lulu Island, May 25th, and more seen on the 26th, migrating leisurely. Frequently seen in great flocks on the Thompson and over the lakes near Ashcroft. On the 7th of June my notes report "2,000 hovering low about a small lake," the only chance I had to secure specimens. They remained there all that day but were gone the next day. Occasional flocks appeared at Clinton, Lac La Hache, Ashcroft and Kamloops until June 12th. They were again seen at Vernon, June 22nd. At no time did they appear singly or in detached pairs.

The mystery of their nidification I was unable to solve, as they appeared on all occasions to be gregarious and nomadic, rarely remaining two days in the same place. None were seen on the mountains during ascent, but they frequently disappeared among them after a foray in the valley. At no time did they

display the arts indicative of the breeding period seen in other birds, not a call note or other sign of recognition being detected during my extended acquaintance with them.

146. *Chaetura vauxii*. Vaux's Swift.

Arrived April 11th, at Nisqually and May 13th at Goldstream, where they were an abundant migrant, associating at times with *C. niger*. Seen at Lac La Hache, July 1st.

147. *Selasphorus rufus*. Rufous Humming-bird.

Incredibly numerous on the coast during April migration; nesting at Nisqually while night frosts still lingered and mercury averaged 45° to 50° during the day. Scarcely less common in many parts of the interior districts and found on the summits of highest mountains, including the Rockies. Nests with eggs nearly hatched found April 18th.

***148. *Stellula calliope*.** Calliope Humming-bird.

A few very small "hummers" frequenting the interior and southern Rocky Mountain districts were probably *S. calliope*.

149. *Tyrannus tyrannus*. Kingbird.

Abundant in the interior.

150. *Tyrannus verticalis*. Arkansas Kingbird.

Finds its northern limit a few miles south of Clinton. Ranges west in the breeding season to the Selkirk Mountains. I did not find it on the coast.

151. *Sayornis saya*. Say's Flycatcher.

Not common. Same distribution as preceding species.

152. *Contopus borealis*. Olive-sided Flycatcher.

Breeding at high altitudes in the east Cascade and Rocky Mountain districts.

153. *Contopus richardsonii*. Western Wood Pewee.

Not abundant, but represented in all localities visited.

154. *Empidonax difficilis*. Western Flycatcher.

Mr. Streator says that this species, while "common in the coast region," is "more so in the interior." Not only is this disproved by the specimens taken by him but by my own skins, all of which came from west of the Cascades.

155. *Empidonax pusillus*. Little Flycatcher.

156. *Empidonax pusillus traillii*. Traill's Flycatcher.

The relationships of these forms in British Columbia are confusing, apparently reversing the relative distribution of eastern and western as it obtains farther south. Six specimens from Ashcroft, Vernon and Lac La Hache, are *pusillus*; one from Lac La Hache is evidently *traillii*. Three from Lulu Island, slightly yellower below and browner above than interior skins, appear to be *traillii*. Three of Mr. Streater's birds are from the eastern and three from the western Cascade regions, yet all appear to be *traillii* with larger bills, while all of mine from the same regions more nearly resemble *pusillus*. I incline to the theory that *traillii* ranges boreally through northern, eastern and western British Columbia, centrally receiving a slight admixture of *pusillus* through the intrusion of the upper Sonoran element into the country around Ashcroft.

157. *Empidonax hammondi*. Hammond's Flycatcher.

Of uniform distribution over mainland and islands. Breeding wherever found.

158. *Otocoris alpestris merrilli*. Dusky-horned Lark.

Breeding in the highland valleys near Ashcroft.

159. *Pica pica hudsonica*. American Magpie.

Well scattered over the interior but nowhere so common as in Okanagan Valley near Vernon.

160. *Cyanocitta stelleri*. Steller's Jay.

Found only on the coast and west Cascade slopes. Both Fannin and Streater assert they are found in the interior, a statement disproved by all the specimens secured.

161. *Cyanocitta stelleri annectens*. Black-headed Jay.

While many of the interior specimens are intermediate, all are more referable to *annectens* than *stelleri*.

162. *Perisoreus canadensis capitalis*. Rocky Mountain Jay.

I noted these Jays at Lac La Hache, Bonaparte, Vernon, Nelson and Field.

163. *Perisoreus obscurus*. Oregon Jay.

One specimen was taken at Nisqually. They are not numerous on Vancouver Island and may be said to be rare in summer on the coast. Mr. Fannin seems to have confounded this species with *P. canadensis capitalis* as a resident of the interior. I have no mate-

rial to show how far *obscurus* reaches eastward, nor just where the western range of *capitalis* terminates.

164. (?) *Corvus corax sinuatus*. American Raven.

Ravens were abundant in the Cascades, rare in the Bonaparte Valley, at Lac La Hache and at Vernon, but at Nelson became abundant again. One specimen secured at the latter place approaches more nearly to *sinuatus* than *principalis*, the latter being given by Mr. Fannin for British Columbia.

165. *Corvus americanus*. } Northwest Crow.
Corvus caurinus. }

On the west coast crows are abundant. In the interior of British Columbia they are found in diminished numbers. Their habits and voices are essentially the same. In size they are extremely variable, the smallest individuals being found on the shores of the Pacific, the larger ones coming from the interior of British Columbia. These are connected by an unbroken series of intergrades. In coloration they are also variable, many specimens of both large and small birds differing but slightly from *americanus* of the east, but the average of all British Columbia specimens is less glossy than that of eastern birds, the reflections being confined chiefly to head, neck and wing coverts, and often lacking on lower parts. Large and small birds pair together, both east and west of the Cascades. Average measurements of northwest crows, as compared with those of birds from the Atlantic slope are decidedly less. These facts not only confirm Baird's theory that *caurinus* is a "dwarfed race" of *americanus*, but show that they, together with the larger crows of the northwest, should be separated from *Corvus americanus* of the east under the name *Corvus americanus caurinus*. A detailed discussion of the relationships of the birds in question, with tables of comparative measurements, is contained in the Auk for January, 1893.

166. *Picicorvus columbianus*. Clarke's Nutcracker.

Extending from the summits of Cascades to the summits of Rocky Mountains in summer. Rare at Clinton and Lac La Hache but wintering wherever found. The Indians declare they breed in February and again in July.

167. *Molothrus ater*. Cowbird.

A young male was shot at Vernon. Mr. D. McKinley reports them as occasionally visiting the cattle corrals at Lac La Hache.

- *168. *Xanthocephalus xanthocephalus*. Yellow-headed Blackbird.

I saw a skin of this bird, shot at Vernon. Clinton; J. Smith. Lac La Hache, McKinley Bros.; White Valley, Okanagan. Casually breeding in British Columbia.

169. *Agelaius phoeniceus*. Red-wing Blackbird.

Of very local occurrence. Found breeding at Victoria, Lulu Island and Vernon. In a series of twenty-three Washington and British Columbia skins no differences are apparent between these and Atlantic coast specimens.

170. *Sturnella magna neglecta*. Western Meadowlark.

Very rare at Lac La Hache. In all other open situations abundant, from Vancouver Island to the Rocky Mountain foothills.

171. *Icterus bullockii*. Bullock's Oriole.

Rare at Ashcroft and disappearing midway between Ashcroft and Clinton, on the Bonaparte River. More numerous at Kamloops and abundant around Swan Lake, at Vernon.

172. *Scolecophagus cyanocephalus*. Brewer's Blackbird.

Breeding in suitable localities, both east and west of Cascades to Vernon, in the south, and Lac La Hache in the north.

173. *Pinicola enucleator*. Pine Grosbeak.

East and west Cascade and Rocky Mountain regions of British Columbia. Not common.

174. *Carpodacus purpureus californicus*. California Purple Finch.

Found breeding on the coast.

- *175. *Carpodacus cassinii*. Cassin's Purple Finch.

A few examples, probably of this species, were found breeding in the interior.

176. *Loxia curvirostra minor*. American Crossbill.

Coextensive with coniferous forests at all elevations. East and west of Cascades.

177. *Leucosticte tephrocotis*. Gray-crowned Finch.

A flock of these was seen on the Rocky Mountain summits near Field.

178. *Acanthis* ? Redpoll.

A Redpoll secured by Mr. Lindley at Victoria resembles *linaria* but is larger and otherwise different. From my lack of specimens of the other forms its identity remains questionable.

179. *Spinus pinus*. Pine Siskin.

A very abundant resident in all localities.

180. *Poöcaetes gramineus*. Vesper Sparrow.

Numerous in all open situations between the Cascades and Rockies as far north as Lac La Hache. The presence of birds in the Ashcroft region, so nearly identical with Atlantic coast specimens, is at variance with the prevailing tendency of western forms to supplant the Boreal in that locality.

*181. (?) *Poöcaetes gramineus confinis*. Western Vesper Sparrow.

I wounded a singing male Vesper Sparrow near Victoria, but it was lost. Fannin calls the coast *Poöcaetes*, *P. gramineus confinis*. If it differs at all from *P. gramineus* I am disposed to think it will prove to be *P. gramineus affinis*.

182. *Ammodramus sandwichensis*. Sandwich Sparrow.

183. *Ammodramus sandwichensis alaudinus*. Western Savanna Sparrow.

Mr. Chapman having kindly loaned me the entire series of *Ammodramus* in the Streater collection, I am enabled, in connection with my own series, to trace the relations and distribution of the two forms with some exactness. Sixty-five skins from twenty localities in Washington and British Columbia, taken during regular intervals from April to October inclusive, form the basis of this examination. *Alaudinus* breeds in all localities in Washington and British Columbia, from the Rocky Mountains to the coast (including the islands), from sea level to an elevation of 5,000 feet. It probably winters sparingly on the south shores of Puget Sound, and begins to breed there the second week in April. In the interior it was not found nesting before June 1st, laying probably the latter part of May.

Intermediates referable to *alaudinus* were passing northward in flocks on Vancouver Island after typical *alaudinus* had begun to breed there. These connect so perfectly the two forms breeding respectively in Alaska and southern British Columbia that it is impossible to classify satisfactorily any but the extremes. It is on this account, probably, that Mr. Fannin has included Vancouver Island in the breeding range of *sandwichensis*. On the contrary, typical *sandwichensis* have all passed Victoria by the middle of May, leaving behind them typical *alaudinus* and a few intermediates as summer residents. In the interior this intergrading is scarcely noticeable, due, probably, to the absence of *sand-*

wichensis as a migrant east of the Cascades. The proportion of typical *sandwichensis* to *alaudinus* during migrations on the coast is as one in twenty, but if we include among the former the largest intermediates the proportion would be one in ten. The bulk of typical *sandwichensis* probably winter on the coast north of Victoria, while the majority of the larger intermediates found migrating at Victoria breed south of the 55th parallel. Many intermediates closely resemble *A. sandwichensis savanna*. It is probable one of these, taken in San Diego, California, by W. O. Emerson, that Mr. Ridgway has wrongly identified as belonging to the eastern race.¹

*184. *Chondestes grammacus strigatus*. Western Lark Sparrow.

Seen only at Vernon, where two pairs of adult birds were feeding their newly fledged young. This is the first authentic record of *Chondestes* north of the United States boundary.

*185. *Zonotrichia querula*. Harris Sparrow.

A specimen of this unlooked-for species, shot by Mr. Maynard near Victoria, was shown me by Mr. Fannin. As it has not, to my knowledge, been put on record, I take the liberty of mentioning it here. It is not only the first record for British Columbia, but the first capture of the species on the Pacific side of the Rocky Mountains. It was shot early in April, 1891.

186. *Zonotrichia leucophrys intermedia*. Intermediate Sparrow.

During migrations this race is sparingly scattered as far west as Vancouver Island, where I took two specimens. It becomes more frequent on the western slope of the Cascades and in the interior I found it breeding at higher latitudes and altitudes.

187. *Zonotrichia leucophrys gambeli*. Gambel's Sparrow.

A very abundant summer resident on the coasts of British Columbia and Washington.

188. *Zonotrichia coronata*. Golden-crowned Sparrow.

In abundant flocks during our stay at Goldstream. I am inclined to doubt Mr. Fannin's statement that they are resident on Vancouver Island and would restrict their southern range in summer to the Queen Charlotte Islands.

¹ Zee, April, 1890, p. 45.

189. *Spizella socialis*. Chipping Sparrow.

190. *Spizella socialis arizonæ*. Western Chipping Sparrow.

The Chipping Sparrows of British Columbia present color characters analogous to those already given for *Empidonax pusillus* and *E. pusillus traillii*. Measurements of six specimens from Victoria coincide with those of average *socialis*. In color they are like *socialis*, being darker on under parts than *arizonæ*. In color of upper parts many may be referred to either or both forms with equal propriety. In fact, differences between breeding specimens, now before me, of *socialis* and *arizonæ*, from such widely remote points as Fort Simpson, Philadelphia, California and central Mexico, are so slight and inconstant as to make their separation of questionable import, I would refer all British Columbia specimens collected by Mr. Streater and myself, including those from the coast, to *socialis*, with the exception, possibly, of six skins collected at Ashcroft, which I agree with Mr. Chapman in calling "intermediates." Average measurements of the eastern and western forms as given by Mr. Ridgway, with those of specimens from Ashcroft and Victoria, are appended :

	Wing.	Tail.	Exposed Culmen.
Socialis	2.75	2.47	.35
Arizonæ	2.88	2.51	.35
Ashcroft	2.75	2.32	.35
Vancouver Island	2.77	2.37	.35

191. *Spizella breweri*. Brewer's Sparrow.

I was induced by the unusually sweet song of a "chipping sparrow" in the pine-wood mountains above Ashcroft, to shoot it. It proved the only specimen of Brewer's Sparrow noted during the trip.

192. *Junco hyemalis oregonus*. Oregon Junco.

193. (?) *Junco hyemalis shufeldti*. Rocky Mountain Junco.

After comparing my series of thirty Juncos from British Columbia and Washington with Mr. Chapman's lengthy discussion of the Streater series, I cannot say that he has characterized any constant differences between eastern and western Cascade forms. The extent of black markings and intensity of color shows itself to be dependent mainly on the make-up of the skin and the season in which it was taken, and the white areas on the rectrices of my series show

decidedly that this character has no diagnostic value whatever. How Mr. Coale's type of *shufeldti* can be, as Mr. Chapman says, "intermediate" between coast and interior birds from British Columbia I cannot conceive. It is highly probable that the Juncos of western North America are as susceptible to local differences of environment occurring throughout their extensive breeding range as any other genus in the country and that a recurrence of any form is liable to happen at any isolated point where physical conditions are duplicated. A thorough overhauling of the group on this principle may yet rescue it from the sacrilegious hands of the species hunter and synonymist. I think it is safe to say that birds indistinguishable from *oregonus* breed on the better-watered mountains of interior British Columbia. The only approach to "*shufeldti*" (sic) is found in birds from the most arid lowlands and most eastern Rockies, but their differences are too slight and fortuitous to warrant a distinction.

194. *Melospiza fasciata guttata*. Rusty Song Sparrow.

Specimens collected during the breeding season show that *Melospiza fasciata rufina* is not present on the southern coasts of British Columbia at that time. The distribution of *guttata* in Washington and British Columbia is singularly uniform in all kinds of localities, no difference between coast and interior individuals being apparent.

<i>Melospiza lincolni striata</i>.	} Lincoln's Finch.
195. <i>Melospiza lincolni</i>.	

As given in my notice of this species in the Auk, further material from the type district of *striata* shows that the characters assigned to that race are too slight and variable to distinguish it from *lincolni*. Since the paper referred to went to press I have received Mr. Brewster's series of *striata* but see no reason to alter my previous statements regarding that race.

196. *Passerella iliaca unalaschensis*. Townsend's Sparrow.

197. *Passerella iliaca schistacea*. Slate-colored Sparrow.

Fifty-two skins of *unalaschensis*, including the Smithsonian Institution series and those collected by Mr. Streater, present the subjoined facts. Starting in the Rocky Mountains, we have first a light gray specimen of typical *schistacea* from Nelson; going west we find another slightly darker and another of the same shade with slightly larger bill which Mr. Chapman labels "sub-sp. nov.," both of which are *schistacea* intermediates. From the west Cascades, British Col-

umbia, Western Oregon and Washington we find average *unalaschensis*. Two winter specimens from Vancouver Island show the extreme of the melanistic coast tendency, being nearly black and very dark specimens from Kalama, Washington and Humboldt Bay, California, show the direction and extent of the migration of this phase along the coast. Alaska specimens are lighter, three from Koniushki Island being nearly as light above as *schistacea*, so that extremes of dark and light from south and north, respectively, appear like distinct species, but they are connected by a perfect intergradation. Winter specimens of *schistacea* all come from California, while all Oregon specimens are winter *unalaschensis*. British Columbia thus forms common ground for *unalaschensis* and *schistacea*, the Cascades being the habitat of intermediates in the breeding season. *Unalaschensis* breeds on Vancouver Island and northward. While *unalaschensis* from north Alaska is nearly as light as *schistacea*, there is a marked difference between the two, the former retaining the brown shade above as contrasted with the ashy cast of upper parts in the latter.

198. *Pipilo maculatus megalonyx*. Spurred Towhee.

Abundantly haunting the woodlands of the interior in all localities visited, up to 4,000 feet.

199. *Pipilo maculatus oregonus*. Oregon Towhee.

Replacing *megalonyx* west of the Cascades. Its exact counterpart in habits and habitat.

200. *Habia melanocephala*. Black-headed Grosbeak.

Not met with alive. Many skins from parts of Washington and British Columbia examined.

201. *Passerina amoena*. Lazuli Bunting.

This beautiful finch is very abundant between the coast range and the Rockies, but does not extend farther north than Bonaparte. Its habitat, in this respect, coincides with that of other species of southern extraction in British Columbia.

202. *Piranga ludoviciana*. Louisiana Tanager.

Fairly abundant and uniformly distributed over the coasts, islands and mainland of Washington and British Columbia.

203. *Progne subis*. Purple Martin.

Only one specimen, a male from Victoria, being secured, it is difficult to state whether the Martins of Vancouver Island belong to

the eastern or western form. The specimen in question closely resembles examples from Pennsylvania. Victoria, Tacoma and Seattle were the only localities where Martins were noted.

204. *Petrochelidon lunifrons*. Cliff Swallow.

205. *Chelidon erythrogaster*. Barn Swallow.

206. *Tachycineta bicolor*. White-bellied Swallow.

207. *Tachycineta thalassina*. Violet-green Swallow.

With the possible exception of *P. lunifrons*, which was not noted west of the Cascades,¹ these Swallows were uniformly abundant through the length and breadth of the land, up to an elevation of 5,000 feet, *thalassina* being noted 2,000 feet higher.

208. *Clivicola riparia*. Bank Swallow.

Found breeding along the Thompson River at Ashcroft, and more abundantly at Kamloops. Its distribution in British Columbia is very local. Not included in Messrs. Chapman's or Fannin's lists.

209. *Stelgidopteryx serripennis*. Rough-wing Swallow.

Not as common but of the same distribution as *Chelidon erythrogaster*.

210. *Ampelis cedrorum*. Cedar Bird.

A common species, as erratic in presence and abundance as its eastern counterpart.

211. *Lanius borealis*. Northern Shrike.

Two specimens from Vancouver Island are in the collection.

212. *Vireo olivaceus*. Red-eyed Vireo.

I did not find the Red-eye west of the Cascades, but over the interior it was commonly distributed, and a few were found at Lac La Hache.

213. *Vireo gilvus swainsonii*. Western Warbling Vireo.

Warbling Vireos abound in Washington and British Columbia. As has been pointed out more fully in the Auk, birds from the northwest indicate the tenability of *swainsonii* as a subspecies of eastern *gilvus*.

214. *Vireo solitarius cassinii*. Cassin's Vireo.

This species is represented by specimens from nearly every locality in British Columbia, including Vancouver Island, Lac La Hache and Vernon. It is found in the open timber at higher eleva-

¹Tacoma, Edwards Bros.

tions, mostly inhabiting the tops of loftiest Coniferæ. Coast and interior specimens are alike.

215. *Vireo huttonii* (obscurus.) Anthony's Vireo.

May be considered a rare visitor to Vancouver Island. I secured one near Victoria. This specimen, also two secured by Mr. Maynard in the spring of 1891, near the same place, are of the strongly marked race of *huttonii*, proposed by A. W. Anthony in 1890.¹

216. *Helminthophila ruficapilla gutturalis*. Calaveras Warbler.

Two examples of the Calaveras Warbler were taken at Vernon and others were seen at Nelson. They may be considered as neither rare nor abundant in British Columbia.

217. *Helminthophila celata*. Orange-crowned Warbler.

Five specimens from the interior of British Columbia are distinguishable from the coast form, which does not appear to cross the Cascades. This species is sparsely scattered over the whole interior region.

218. *Helminthophila celata lutescens*. Lutescent Warbler.

A very abundant summer resident on the Pacific slope, coast and islands. All but one of the series can be separated from *celata* by the darker yellow lower tail coverts.

219. *Dendroica aestiva*. Yellow Warbler.

The most omnipresent and abundant species of the genus.

220. *Dendroica coronata*. Myrtle Warbler.

I did not meet with the "Yellow-rump" east of the Cascades, but found it associating with *D. auduboni* in Vancouver Island and Washington during the migrations. It is much less abundant than *auduboni*. The distribution of this bird in British Columbia is, in some respects, unique.

221. *Dendroica auduboni*. Audubon's Warbler.

Abundant summer resident everywhere.

222. *Dendroica maculosa*. Magnolia Warbler.

A specimen taken at Field and two or three observed at Vernon entitle this species to a place in the fauna of British Columbia.

***223. *Dendroica nigrescens*.** Black-throated Gray Warbler.

On Vancouver Island the peculiar song of *nigrescens* was occasionally detected but no birds secured. I feel quite sure that I saw a pair on the mountains near Clinton.

¹ Zoe, Dec., 1890, p. 307.

224. *Dendroica townsendi*. Townsend's Warbler.

Rare east of Cascades, but abundant in Washington and on Vancouver Island.

225. *Seiurus noveboracensis notabilis*. Grinnel's Water Thrush.

Found breeding along interior streams. Lac La Hache and Bonaparte.

226. *Geothlypis macgillivrayi*. Macgillivray's Warbler.

Found breeding at all localities and elevations.

227. *Geothlypis trichas occidentalis*. Western Yellow-throat.

Rare on Vancouver Island. Abundant at Lulu Island and about the shores of reedy lakes in the interior of British Columbia.

228. *Icteria virens longicauda*. Long-tailed Chat.

In the bushes which line the banks of the Thompson River below Ashcroft I secured two males of this species. Another was heard singing on a ranch above the town. Fort Lapwai, Idaho, was heretofore the most northern record for this Chat.

229. *Sylvania pusilla*. Wilson's Warbler.***Sylvania pusilla pileolata*.** Pileolated Warbler.

The series of Wilson's Warblers taken in eastern and western British Columbia, compared among themselves and with specimens from the Atlantic States, are devoid of any differences which would justify their separation. There is a singular uniformity in the average measurements of specimens from all localities and, saving two specimens from Vancouver Island which show deeper yellow on the forehead, their coloration is remarkably uniform. Judged by the specimens examined, there is not, when we consider its transcontinental range, a more "hard and fast" species than *Sylvania pusilla*.

North of the United States *S. pusilla pileolata* has no better claim to recognition than *Dendroica aestiva morcomi*.

230. *Setophaga ruticilla*. Redstart.

Well represented all over interior British Columbia.

231. *Anthus pensilvanicus*. American Pipit.

Washington and the Province of British Columbia at large. Breeding sparsely on the plateaus and mesas of the interior, up to 4,000 feet.

232. *Cinclus mexicanus*. American Dipper.

Associated with all dashing streams, from the mountains to the sea.

233. *Galeoscoptes carolinensis*. Cat Bird.

Not abundant anywhere and very local in its distribution. It does not appear to get farther north than Clinton. The brownish cast of upper parts, especially on the crown, rarely seen in eastern skins, is very marked in some British Columbia examples and is present in nearly all of them. Western birds average darker beneath than specimens from the Atlantic coast. Measurements of thirteen specimens (including the Streator series) from British Columbia, give the following averages as compared with those of a series of ten from the eastern United States.

	Wing.	Tail.	Exposed Culmen.	Tarsus.
British Columbia	2.58	3.78	.62	1.10
Atlantic States	3.54	3.75	.63	1.12

Both of these differences and those of coloration are too slight and variable to warrant any subdivision of the species.

***234. *Salpinctes obsoletus*.** Rock Wren.

Found about Ashcroft and northward to Cache Creek; also at Kamloops where one was nesting in a "section house," ten feet from the railroad tracks. Five specimens from Ashcroft do not materially differ from Arizona and Utah skins.

235. *Thryothorus bewickii spilurus*. Vigor's Wren.

Abundant in the west Cascade region of Washington and British Columbia. It is doubtful whether this species ever crosses the coast mountains to the interior, it being essentially a lover of lower levels.

236. *Troglodytes aedon parkmanii*. Parkman's Wren.

I never found Parkman's Wren above the 2,000-foot limit. It is not as abundant or evenly distributed in the interior as coastwise.

237. *Troglodytes hiemalis pacificus*. Western Winter Wren.

Abounding on the coast. Two moulting birds from the Selkirk Mountains near Nelson are even darker than skins from Puget Sound. I did not find any Winter Wrens in the arid interior of British Columbia west of the Gold Range, nor at Lac La Hache. The reappearance in the Selkirks of typical *pacificus* and its absence again from the Rockies at Field tallies perfectly with the alternating climatic conditions already pointed out as occurring across this vast area. Dr. Merriam calls the Winter Wren found by him in the Saw Tooth Mountains, Idaho, *hiemalis*.

238. *Cistothorus palustris paludicola*. Tule Wren.

Breeding over the lake country east of Cascades. I found it abundant at Lac La Hache. It must range much farther north than this, probably (G. Hamilton) to Stewart's Lake, British Columbia, latitude 54°.

239. *Certhia familiaris montana*. Rocky Mountain Creeper.

Rare in British Columbia. A male Creeper from Nelson appears to be *montana*.

240. *Certhia familiaris occidentalis*. California Creeper.

Neither rare nor common on the Pacific slope. Rare at Nisqually. Probably reappears on interior mountain peaks.

241. *Sitta carolinensis aculeata*. Slender-billed Nuthatch.

One specimen was taken at Tacoma. It is rare on the coast but abounds in the wooded hills of the interior of British Columbia.

242. *Sitta canadensis*. Red-bellied Nuthatch.

East and West of Cascades; also in the Rocky Mountains.

243. *Sitta pygmæa*. Pygmy Nuthatch.

Only found, and that sparingly, at Vernon.

244. *Parus atricapillus septentrionalis*. Long-tailed Chickadee.

Abound in the inter-mountainous region of British Columbia, up to 3,000 feet.

245. *Parus atricapillus occidentalis*. Oregon Chickadee.

Abound in the coast region.

246. *Parus gambeli*. Mountain Chickadee.

Found in the interior mountains of British Columbia but not in the Rockies.

247. *Parus hudsonicus columbianus*, subsp. nov. Columbian Chickadee.

Four specimens of this strongly differentiated ally of *hudsonicus* were secured in the high mountains surrounding Field, British Columbia. They were abundant in the deepest and darkest recesses of the coniferous forest, associating in flocks of ten to twenty individuals after the familiar manner of the genus. A description of this new form having already appeared in the Auk, it is useless to refer to it further here except to say that it is larger and darker than *hudsonicus*, with a much larger bill and with the throat patch jet black instead of brownish-black.

248. *Parus rufescens*. Chestnut-backed Chickadee.

Very common on the coast and Islands but never found east of the Cascades.

249. *Regulus satrapa olivaceus*. Western Golden-crowned Kinglet.

I can find no color difference between the east and west Cascade Kinglets. In this respect they agree with the British Columbia Winter Wrens.

250. *Regulus calendula*. Ruby-crowned Kinglet.

Numerous on the coast in spring. Breeding in the interior. The nuptial song of this tiny bird is a truly marvellous production. Perched in the top of a giant fir it will remain motionless for thirty minutes at a stretch, singing an incessant hurly-burly loud enough to be heard half a mile away.

251. *Myadestes townsendii*. Townsend's Solitaire.

I secured a Solitaire on Vancouver Island in May. They were met with at high altitudes on both slopes of the Cascades, Selkirks and Rockies, as far north as the 52nd parallel, increasing in abundance eastwardly.

252. *Turdus fuscescens salicicolus*. Willow Thrush.

In all visited localities of the interior. Breeding at Lac La Hache. This extends Mr. Streater's nesting record of the species 150 miles farther north.

253. *Turdus ustulatus*. Russet-back Thrush.

Abundant coastwise.

254. *Turdus ustulatus swainsonii*. Swainson's Thrush.

A female and young male in nesting plumage shot at Nelson where they were fairly abundant.

255. *Turdus aonalaschkae*. Dwarf Hermit Thrush.

On the coast in migrations. Probably breed in the Cascades and mountains of Vancouver Island. I was surprised to again meet this species at Field, where I saw many and secured three birds. One of these in spotted nesting plumage proves that the summer habitat of the Dwarf Thrush is far more extended than formerly supposed and accounts for the appearance of this form in Utah and Nevada in fall migrations.

256. *Turdus aonalaschkae pallasii*. Hermit Thrush.

That *pallasii* and not *auduboni* breed in the region around Lac La Hache is attested by certain skins in the collection. Neither

form was found in any other part of British Columbia. If it be found that *aonalaschkae* and *pallasii* breed indifferently across common ground in the interior and Rocky Mountain regions of British Columbia, without the intervention of intermediates, a more complete separation of the two than is now recognized must be made. At least two points are established by skins in the collection—1st, the breeding of *aonalaschkae* in the Rocky Mountains of British Columbia; 2nd, the breeding of *pallasii* west of the Rockies and south of the 52nd parallel.

257. *Merula migratoria propinqua*. Western Robin.

Uniformly abundant everywhere.

258. *Hesperocichla naevia*. Varied Thrush.

Abundant on the coast, but by no means confined thereto, being found at high altitudes on all the mountains of the interior to the Rocky Mountain summits.

259. *Sialia mexicana*. Western Bluebird.

Not common anywhere but less so in the east Cascade districts where it does not range beyond the Transition Zone.

260. *Sialia arctica*. Arctic Bluebird.

Abundant in northern and western interior portions of British Columbia.

A tabulated list of all the specimens forming the author's collection of British Columbia and Washington birds, including those collected by Messrs Morris and Evans in the same region, is appended. The collection has been recently purchased by the Academy of Natural Sciences.

[illegible]

[illegible]

	Puget Sound, Wash.	Vancouver Isl., B. C.	Lulu Isl., B. C.	Ashcroft, B. C.	Bonaparte, B. C.	Clinton, B. C.	Lac La Hache, B. C.	Kamloops, B. C.	Sicamous, B. C.	Vernon, B. C.	Nelson, B. C.	Field, B. C.
<i>Passerella iliaca schistacea</i>						1					1	
<i>Pipilo maculatus megalonyx</i>				3			2			4		
<i>Pipilo maculatus oregonus</i>	2	4										
<i>Habia melanocephala</i>		1										
<i>Passerina amoena</i>				6				1		5		
<i>Piranga ludoviciana</i>		1		1	1	2	1			2	1	1
<i>Progne ?</i>		1										
<i>Petrochelidon lunifrons</i>				4								
<i>Chelidon erythrogaster</i>			3	2	3							2
<i>Tachycineta bicolor</i>	1	1							6			
<i>Tachycineta thalassina</i>		9		3	1					1		1
<i>Clivicola riparia</i>				1				4				
<i>Stelgidopteryx serripennis</i>		2		2					1			
<i>Ampelis cedrorum</i>					1		1		1	1	1	
<i>Lanius borealis</i>		2										
<i>Vireo olivaceus</i>				1	1					4	2	
<i>Vireo gilvus swainsonii</i>		8	1	1			1			3	1	
<i>Vireo solitarius cassinii</i>		3				2	1			2	1	
<i>Vireo huttoni (obscurus)</i>		1										
<i>Helminthophila ruficapilla gutturalis</i>										2		
<i>Helminthophila celata</i>							1					
<i>Helminthophila celata lutescens</i>	3	16										
<i>Dendroica aestiva</i>		15	1	4	2	1				2	1	
<i>Dendroica coronata</i>		4										
<i>Dendroica auduboni</i>	9	3		2	1				2			1
<i>Dendroica maculosa</i>												1
<i>Dendroica townsendii</i>		11										
<i>Seiurus noveboracensis notabilis</i>							2					
<i>Geothlypis macgillivrayi</i>		9	1		2		3	1		10		
<i>Geothlypis trichas occidentalis</i>			5			4	5	1		7		
<i>Icteria virens longicauda</i>				2								

	Puget Sound, Wash.	Vancouver Isl., B. C.	Lulu Isl., B. C.	Ashcroft, B. C.	Bonaparte, B. C.	Clinton, B. C.	Lac La Hache, B. C.	Kamloops, B. C.	Sicamous, B. C.	Vernon, B. C.	Nelson, B. C.	Field, B. C.
<i>Sylvania pusilla</i>	8	1									1	1
<i>Setophaga ruticilla</i>												
<i>Anthus pensilvanicus</i>	8	1										
<i>Cinclus mexicana</i>		6										
<i>Galoescptes carolinensis</i>					2					5	1	
<i>Thryothorus bewicki spilurus</i>	4	1	1									
<i>Troglodytes aedon parkmani</i>		3								4	1	
<i>Troglodytes hiemalis pacificus</i>	3	3									2	
<i>Cistothorus palustris paludicola</i>							2			7		
<i>Certhia familiaris montana</i>											1	
<i>Certhia familiaris occidentalis</i>	3											
<i>Sitta carolinensis aculeata</i>	1			2						2		
<i>Sitta canadensis</i>										4		
<i>Sitta pygmaea</i>										3		
<i>Parus atricapillus septentrionalis</i>					1	1	1	1		1		
<i>Parus atricapillus occidentalis</i>	8		5									
<i>Parus gambeli</i>				2	2	1	3					
<i>Parus hudsonicus columbianus</i>												4
<i>Parus rufescens</i>	10	6										
<i>Regulus satrapa olivaceus</i>	4	6	1							1	2	2
<i>Regulus calendulus</i>	2						1					
<i>Myadestes townsendi</i>		1				1						
<i>Turdus fuscescens salicicolus</i>					1	1		2		2		
<i>Turdus ustulatus</i>		9	2									
<i>Turdus ustulatus swainsonii</i>											2	
<i>Turdus aonalaschkæ</i>												3
<i>Turdus aonalaschkæ pallasii</i>							2					
<i>Merula migratoria propinqua</i>	4	5	2	1	1		3			1		
<i>Hesperocichla naevia</i>	9	4									1	
<i>Sialia mexicana</i>	2	2										
<i>Sialia arctica</i>						1		1		1		5